PTO/SB/17 (12-04v2)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 910.00

Complete if Known	
Application Number	09/931,962
Filing Date	August 16, 2001
First Named Inventor	Yoshio Fukuhara
Examiner Name	A. C. Wong
Art Unit	2613
Attorney Docket No.	56398 (70840)

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 04-1105 Deposit Account Name: Edwards & Angell, LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
Application Type	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fee ($)	Small Entity Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
8 - =	20 x		=

Multiple Dependent Claims: Fee ($) _____ Fee Paid ($) _____

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
1 - =	3 x		=

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ /50	_____ (round up to a whole number) x	_____	= _____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): 1251 Extension for response within first month	120.00
1801 Request for continued examination (RCE) (see 37 ...	790.00

SUBMITTED BY					
Signature	Steven M. Jensen	Registration No. (Attorney/Agent)	42,693	Telephone	(617) 439-4444
Name (Print/Type)	Steven M. Jensen			Date	September 9, 2005

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EV711310501US, in an envelope addressed to: MS RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: September 9, 2005 Signature: Michelle Chicos (Michelle Chicos)

COPY

Docket No. 56398 (70840)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Y. Fukuhara et al.

U.S. SERIAL NO.: 09/931,962 GROUP: 2613

FILING DATE: August 16, 2001 EXAMINER: A. Wong

FOR: MOVING OBJECT TRACKING APPARATUS

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted by facsimile to the U.S. Patent & Trademark Office by facsimile number 571-273-8300 on August 9, 2005.

By: _____
Steven M. Jensen

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

AMENDMENT

Applicants are in receipt of the Office Action dated May 9, 2005 of the above-referenced application. Please amend the application as follows:

Amendments to the claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 4 of this paper.

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claim 1 (currently amended): A moving object tracking apparatus for detecting and tracking one or more moving objects in an environment, comprising:

an optical system including a hyperboloidal mirror for capturing visual field information on a 360° environment;

a single stationary camera which does not rotate, for converting the captured visual field information to image information; and

an information processing section for processing the image information,

wherein the information processing section detects and tracks the one or more moving objects based on the image information.

Claim 2 (original): A moving object tracking apparatus according to claim 1, wherein:

the image information includes all-direction image information; and

the information processing section converts at least a portion of the all-direction image information to panoramic image information.

Claim 3 (original): A moving object tracking apparatus according to claim 2, wherein the information processing section provides a marker to each of the one or more moving objects in the panoramic image information.

Claim 4 (original): A moving object tracking apparatus according to claim 3, wherein the information processing section provides a marker to each of the one or more moving objects depending on a size of each of the one or more moving objects.

Claim 5 (original): A moving object tracking apparatus according to claim 1, wherein:

the image information includes all-direction image information; and

the information processing section converts at least a portion of the all-direction image information to perspective projection image information.

Claim 6 (original): A moving object tracking apparatus according to claim 1, wherein the information processing section processes the image information using a previously prepared table.

Claim 7 (original): A moving object tracking apparatus according to claim 1, wherein the information processing section processes the image information using only one kind of data out of RGB data in the image information.

Claim 8 (original): A moving object tracking apparatus according to claim 1, wherein the information processing section detects the one or more moving objects based on a brightness difference between predetermined frame information and frame information previous to the predetermined frame information of the image information.

REMARKS

Claims 1-8 are pending in the application. Claim 1 has been amended by the present amendment. The amendment is fully supported by the specification as originally filed (see, e.g., page 5, lines 10-12).

As amended, claim 1 recites "a single stationary camera which does not rotate" (emphasis added). One advantage of this feature, as described on page 34, lines 12-14 of the specification, is maintenance is substantially not required for long-term operation, which results in a highly reliable and stable operation.

Claims 1-6 were rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 6,226,035 to Korein et al. (hereinafter "Korein") in view of U.S. Patent 6,304,285 to Geng. Claim 7 was rejected under 35 USC 103(a) as being unpatentable over Korein in view of Geng, and further in view of U.S. Patent 5,953,449 to Matsuda et al. Claim 8 was rejected under 35 USC 103(a) as being unpatentable over Korein in view of Geng, and further in view of U.S. Patent 5,787,199 to Lee. These rejections are respectfully traversed.

The Korein reference does not teach or suggest a moving object tracking apparatus for detecting and tracking one or more moving objects in an environment, including a single stationary camera which does not rotate.

Korein discloses a system in which an image sensor or camera 20 is mounted on a ceiling but rotates in two axes in order to pan and tilt to the area of interest (see column 6, lines 50-51). As stated in column 6, lines 55-58 of Korein: "The image sensor 20 also has motors and controls that enable the image sensor to move laterally (pan) and move up and down (tilt), under electronic control."

On page 2 of the Office Action, it was asserted that the camera 20 in Korein is stationary because it is mounted on a ceiling (see "Response to Arguments" on page 2, middle of page). However, as disclosed in Korein, the camera 20 must move in order to pan to the area of interest. In order to achieve this movement, the image sensor/camera 20 of Korein is provided with motors and controls.

Therefore, Korein does not teach or suggest "a single stationary camera which does not rotate," as recited in claim 1.

Geng discloses a hyperboloidal mirror for viewing an object within a hemispherical field of view from a single virtual point, and a CCD camera focused on the hyperboloidal mirror.

Even if the hyperboloidal mirror of Geng were somehow used in the imaging system of Korein, it would not be possible to obtain the apparatus recited in claim 1. A stationary, non-rotating camera used in Korein would not be capable of detecting or tracking one or more moving objects; instead, the camera of Korein must be able to pan and tilt for the system to function properly. Thus, to modify the system of Korein with the mirror of Geng would render the device "unsuitable for its intended purpose" (see MPEP 2143.01).

Moreover, one of ordinary skill in the art would not have sufficient motivation to combine the CCD camera of Geng with the system of Korein, as such a proposed combination would defeat the purpose of the image sensor 20 in Korein. Specifically, the image sensor 20 in Korein overcomes deficiencies of prior art stationary cameras (see column 1, lines 32-56). By specifically requiring the use of a moving camera, Korein teaches away from the use of a stationary camera.

For at least the reasons discussed above, the combination of Korein in view of Geng does not teach or suggest the Applicants' claimed invention as recited in claim 1.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,

EDWARDS & ANGELL, LLP

Date: August 9, 2005

By: _____

Steven M. Jensen
(Reg. No. 42,693)

P.O. Box 55874
Boston, MA 02205

Phone: (617) 439-4444

Customer No. 21874